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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/802,451

Applicant(s)

MILLS, LAWRENCE R.

Examiner

CHRISTOPHER FINDLEY

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8, 9, 11-21 and 23-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-9, 11-21, and 23-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The Examiner notes that claims 6, 7, 10, and 22 have been cancelled without prejudice and claims 23-26 have been added via the amendment filed 2/22/2008. Claims 1-5, 8-9, 11-21, and 23-26 are pending.

Response to Arguments

2. Applicant's arguments filed 2/22/2008 have been fully considered but they are not persuasive.
3. Re claims 1, 16, and 21, the Applicant contends that the prior art cited fails to teach or suggest the claimed feature in which the system transforms wide-angle data into both a panoramic view and a virtual view. However, the Examiner respectfully disagrees. Koyanagi discloses generating a panoramic view and the user utilizing the generated panoramic view to control the pan tilter camera, thus controlling the operation area/virtual view (Koyanagi: paragraph [0043]). Therefore, the data received from the camera portion is used in the generation of both of the panoramic view and the operation area/virtual view.
4. Re claim 14, the Applicant contends that the prior art cited fails to teach or suggest that the reference window on the panoramic view, which indicates the outline of the virtual view, has a size and position determined according to user command data. However, the Examiner respectfully disagrees. Koyanagi discloses generating a panoramic view and the user utilizing the generated panoramic view to control the pan tilter camera, thus controlling the operation area/virtual view (Koyanagi: paragraph

[0043]). Furthermore, Koyanagi discloses that the zoom operation changes the size of the reference window within the panoramic view (Koyanagi: Fig. 16B; Figs. 10A and 10B; paragraph [0094]).

5. Applicant's arguments with respect to claims 9 and 19 have been considered but are moot in view of the new ground(s) of rejection.

6. Re claim 11, the Applicant contends that the prior art cited does not teach or suggest that the system transforms wide-angle image data received by the buffer into virtual view data corresponding to at least one virtual view and into panoramic view data corresponding to at least one panoramic view in real time (emphasis added by Applicant). However, the Examiner respectfully disagrees. Koyanagi discloses the flow of the control algorithm advances to relevant steps in accordance with a user input, indicating real-time processing (Koyanagi: Fig. 15; paragraph [0131]). Real time processing conventionally refers to executing a processing step as quickly as possible upon the triggering of an event (i.e., user input). Therefore, quickly generating a panoramic image upon the user selecting the panoramic generation button qualifies as real time processing.

7. Re claim 15, the Applicant contends that the prior art cited fails to teach or suggest that the remaining portion of the monitored area is displayed in the second panoramic view, thus displaying the full 360° viewing area. However, the Examiner respectfully disagrees. Poelstra discloses registering of complete surroundings in a single image with the help of a fish eye optic (Poelstra: column 1, lines 50-51), wherein successive radial panoramic images are generated from the original

fish eye image (Poelstra: column 1, line 65, through column 2, line 7). By disclosing that the fish eye image registers the complete surroundings, Poelstra indicates that the fish eye image encompasses 360°, and, thus, one of ordinary skill in the art at the time of the invention would have found it obvious that the radial images generated from the original fish eye image would also encompass the complete surroundings. Although Poelstra does not explicitly state that the original fish eye image is divided into two radial panoramic images, one of ordinary skill in the art at the time of the invention would have found it obvious that it would be possible to divide the fish eye image into two successive panoramic images encompassing the complete surroundings in accordance with the resolution requirements of a display monitor for displaying very wide panoramic images, so as to meet the system requirements of the system designer.

8. Re claim 15, the Applicant further contends that the prior art cited fails to teach or suggest an angle of reference for the viewing area. However, the Examiner respectfully disagrees. Poelstra discloses that the fish eye image is converted to panoramic images with reference to the center of the fish eye image (Poelstra: column 2, lines 1-2), wherein the center of the fish eye image corresponds to a reference axis, and an angle γ indicates the maximum viewing angle with respect to an axis that is perpendicular to the axis corresponding to the center of the fish eye image (Poelstra: Fig. 7; column 3, lines 56-61).

9. A modified copy of the previous rejection, reflecting the changes made to the claims via the amendment filed 2/22/2008, is included below.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-4, 8, 11-14, 16-18, and 20, 21, 23, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Koyanagi et al. (US 20040257436 A1).

Re **claim 1**, Koyanagi discloses a system for creating signals indicative of a graphical user interface from wide-angle image data corresponding to a monitored area, said system comprising: a buffer configured to receive wide-angle image data corresponding to the monitored area (Koyanagi: Fig. 3, storing portion 30); and a processor (Koyanagi: Fig. 3, computer 1 and controlling portion 31) operably coupled to said buffer and configured to: transform wide angle image data received by the buffer into: panoramic view data corresponding to at least one panoramic view of the monitored area; and virtual view data corresponding to at least one virtual view of a portion of the at least one panoramic view (Koyanagi: paragraph [0012]); and encode at

least one panoramic image and at least one virtual view from the wide angle image data for display (Koyanagi: paragraph [0043], captured images are displayed; paragraph [0051], pictures may be captured in a particular format).

Re **claim 2**, Koyanagi discloses a user input module configured to provide user command data to said processor (Koyanagi: Fig. 3, pointing device 14; paragraph [0045]); and said processor being further configured to determine the virtual view data based on the user command data (Koyanagi: paragraph [0044]).

Re **claim 3**, Koyanagi discloses that the processor is further configured to determine reference data corresponding to an area in the panoramic view represented by the virtual view (Koyanagi: Fig. 1; paragraph [0043], "a frame 6C that represents the current position and the angle of view of the pan tilter and a pan tilter limiter 6D are superimposed to the panorama picture").

Re **claim 4**, Koyanagi discloses a first video camera system operably coupled to said buffer and said processor (Koyanagi: Fig. 3, lens block 15 and CCD 19 generate image data), said first video camera system operable to generate wide-angle image data (Koyanagi: Figs. 4A-4F and paragraphs [0021] and [0053]-[0054], image data is compiled into a panoramic view).

Re **claim 8**, Koyanagi discloses that said processor performs operations on the wide-angle image data to correct distortion in the wide-angle image data, such that said panoramic view and said virtual view are corrected images (Koyanagi: paragraph [0054]).

Re **claim 11**, Koyanagi discloses that the system transforms wide-angle image data received by the buffer into virtual view data corresponding to at least one virtual view and into panoramic view data corresponding to at least one panoramic view in real time (Koyanagi: Fig. 15; paragraph [0131], the flow of the control algorithm advances to relevant steps in accordance with a user input, indicating real-time processing).

Re **claim 12**, Koyanagi discloses a display device operably coupled to said processor to display the at least one panoramic view and the at least one virtual view (Koyanagi: Fig. 3, monitor 2).

Re **claim 13**, Koyanagi discloses that the at least one panoramic view corresponds to a substantially undistorted view of the monitored area (Koyanagi: paragraphs [0053]-[0054], generating undistorted panoramic view), and the at least one virtual view corresponds to a portion of the at least one panoramic view (Koyanagi: paragraph [0012]).

Re **claim 14**, Koyanagi discloses at least one reference window overlaid on at least one portion of the at least one panoramic view, each overlaid portion defining the portion of the at least one panoramic view to which the at least one virtual view corresponds (Koyanagi: Figs. 1 and 2), and the at least one reference window having a size and a position determined according to the user command data (Koyanagi: paragraph [0043], user controls position of operation area/virtual view; Fig. 16B; Figs. 10A and 10B; paragraph [0094], zoom operation changes the size of the reference window within the panoramic view).

Claim 16 recites the corresponding method for implementation within the system of claim 1, and, therefore, has been analyzed and rejected with respect to claim 1 above.

Re **claim 17**, Koyanagi discloses determining pan, tilt and zoom values (Koyanagi: Fig. 16A, step S13); and determining the portions of the buffered data to transform into virtual view data for at least one virtual view based on the pan, tilt and zoom values (Koyanagi: paragraphs [0050]-[0051]).

Re **claim 18**, Koyanagi discloses determining reference data based on the pan, tilt and zoom values (Koyanagi: paragraph [0043]).

Re **claim 20**, Koyanagi discloses encoding reference data, virtual view data and panoramic view data for output (Koyanagi: paragraph [0051]).

Re **claim 21**, Koyanagi discloses a system for creating signals indicative of a graphical user interface from wide-angle image data corresponding to a monitored area, said system comprising: means for storing wide-angle image data corresponding to a monitored area (Koyanagi: Fig. 3, storing portion 30); and means for processing and transforming said wide-angle image data received from said storing means into panoramic view data corresponding to at least one panoramic view of the monitored area and into virtual view data corresponding to at least one virtual view of a portion of the at least one panoramic view (Koyanagi: paragraph [0012]; paragraphs [0053]-[0054], images merged to form panoramic pictures).

Re **claim 23**, Koyanagi discloses that the size and the position of each reference window determines pan, tilt and zoom values for the corresponding virtual view (Koyanagi: paragraph [0043], user controls position of operation area/virtual view; Fig. 16B; Figs. 10A and 10B; paragraph [0094], zoom operation changes the size of the reference window within the panoramic view).

Re **claim 26**, Koyanagi discloses determining a position and a size of at least one reference window positioned over the portion of at least one of the at least one panoramic view corresponding to the virtual view, the position and size defined according to user command data (Koyanagi: paragraph [0043], user controls position of operation area/virtual view; Fig. 16B; Figs. 10A and 10B; paragraph [0094], zoom operation changes the size of the reference window within the panoramic view); and wherein the pan, tilt and zoom values are based upon the position and the size of the at least one reference window (Koyanagi: paragraph [0044], user input controls pan tilter).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi et al. (US 20040257436 A1) in view of Monroe (US 20070182819 A1).**

Re **claim 9**, Koyanagi discloses a majority of the features of claim 9, as discussed above in claim 4, and additionally a camera system operably coupled to the processor (Koyanagi: Fig. 3, camera portion 11), said camera system having a camera and being configured to aim the camera at a portion of the monitored area according to pan, tilt and zoom command data (Koyanagi: paragraphs [0048]-[0049]), and configured to capture video image data (Koyanagi: Fig. 3, camera portion 11 outputs a video signal); and wherein the processor is further configured to communicate pan, tilt and zoom command data to cause the camera system to aim the camera at a portion of the monitored area (Koyanagi: paragraphs [0048]-[0049]), but Koyanagi does not specifically disclose that the camera system includes a second video camera; and wherein captured video image data from the second video camera is included in the at least one virtual view. However, Monroe discloses a digital security multimedia sensor system, wherein panoramic views of monitored areas are created by merging images captured by a multitude of cameras (Monroe: Fig. 2, elements 10a-10h) and cameras within the array may be selectively scrutinized in order to track objects (Monroe: Fig. 16; paragraph [0106]). Since both Koyanagi and Monroe relate to panoramic image processing, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the multiple cameras of Monroe with the photographing system of Koyanagi in order to permit transmission of the least amount of data to accomplish the desired image transmission (Monroe: paragraph [0024]). The combined system of Koyanagi and Monroe has all of the features of claim 9.

Re **claim 19**, the combined system of Koyanagi and Poelstra discloses a majority of the features of claim 19, as discussed in claims 16-18 above. Koyanagi additionally discloses that the buffered wide-angle data is received from a first video camera system communicating pan, tilt and zoom commands to a camera system (Koyanagi: paragraph [0049]); and receiving virtual view data for the at least one virtual view (Koyanagi: paragraph [0012]) from the camera system (Koyanagi: paragraph [0012]), but Koyanagi does not specifically disclose a second virtual view and receiving virtual view data for the second virtual view, wherein captured video image data from the second video camera is included in the at least one virtual view. However, Monroe discloses a digital security multimedia sensor system, wherein panoramic views of monitored areas are created by merging images captured by a multitude of cameras (Monroe: Fig. 2, elements 10a-10h) and cameras within the array may be selectively scrutinized in order to track objects (Monroe: Fig. 16; paragraph [0106]). Since both Koyanagi and Monroe relate to panoramic image processing, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the multiple cameras of Monroe with the photographing system of Koyanagi in order to permit transmission of the least amount of data to accomplish the desired image transmission (Monroe: paragraph [0024]). The combined system of Koyanagi and Monroe has all of the features of claim 19.

14. Claims 5, 15, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyanagi et al. (US 20040257436 A1) in view of Poelstra (US 5563650 A).

Re **claim 5**, Koyanagi discloses a majority of the features of claim 5, as discussed above in claim 4, but Koyanagi does not specifically disclose that the video camera system includes a fisheye lens. However, Poelstra discloses a device for producing and consulting panoramic images, wherein images are produced using a fish eye lens and the images are transformed into panoramic images (Poelstra: column 1, lines 42-48). Since both Koyanagi and Poelstra relate to producing panoramic images for review by a user, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the fish eye lens of Poelstra with the photographing system of Koyanagi in order to produce a system capable of creating multiple panoramic views very quickly for consultation by the user (Poelstra: column 1, lines 38-41). The combined system of Koyanagi and Poelstra has all of the features of claim 5.

Re **claim 15**, Koyanagi disclose a majority of the features of claim 15, as discussed in claim 14 above. Additionally, Koyanagi discloses that the at least one panoramic view includes a first panoramic view, the first panoramic view corresponding to a first portion of the monitored area (Koyanagi: Figs. 4A-4E, a panoramic image representing a portion of the monitoring area is extracted); the at least one virtual view includes a first virtual view, the first virtual view corresponding to a first portion of the first panoramic view (Koyanagi: Figs. 1 and 2, the operation area represents a selected portion of the panorama operation area), but Koyanagi does not specifically disclose

that the at least one panoramic view includes a second panoramic view, the second panoramic view corresponding to the remaining portion of the monitored area, and a second virtual view, the second virtual view corresponding to a second portion of the second panoramic view; and a combination of the first panoramic view and the second panoramic view provide a 360° view of the monitored area relative to a vertical axis. However, Poelstra discloses a device for producing and consulting panoramic images, wherein images are produced using a fish eye lens and the images are transformed into panoramic images (Poelstra: column 1, lines 42-48), and more than one panoramic image may be extracted from the initial fish eye image (Poelstra: Figs. 5 and 6; column 3, lines 42-46). Poelstra further discloses registering of complete surroundings in a single image with the help of a fish eye optic (Poelstra: column 1, lines 50-51), wherein successive radial panoramic images are generated from the original fish eye image (Poelstra: column 1, line 65, through column 2, line 7). By disclosing that the fish eye image registers the complete surroundings, Poelstra indicates that the fish eye image encompasses 360°, and, thus, one of ordinary skill in the art at the time of the invention would have found it obvious that the radial images generated from the original fish eye image would also encompass the complete surroundings. Poelstra also discloses that the fish eye image is converted to panoramic images with reference to the center of the fish eye image (Poelstra: column 2, lines 1-2), wherein the center of the fish eye image corresponds to a reference axis, and an angle gamma indicates the maximum viewing

angle with respect to an axis that is perpendicular to the axis corresponding to the center of the fish eye image (Poelstra: Fig. 7; column 3, lines 56-61). Since both Koyanagi and Poelstra relate to producing images for consultation by a user, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the multiple panoramic image display of Poelstra with the panoramic/virtual view display of Koyanagi in order to produce a system capable of producing and consulting a large number of panoramic views quickly (Poelstra: column 1, lines 38-41). The combined system of Koyanagi and Poelstra has all of the features of claim 15.

Re **claim 24**, the combined system of Koyanagi and Poelstra discloses a majority of the features of claim 24, as discussed above in claim 15. Additionally, Koyanagi discloses that the at least one reference window is user-selectable for controlling the size and the position of the reference window to determine pan, tilt and zoom values for the corresponding virtual view (Koyanagi: paragraph [0043], user controls position of operation area/virtual view; Fig. 16B; Figs. 10A and 10B; paragraph [0094], zoom operation changes the size of the reference window within the panoramic view).

Re **claim 25**, Koyanagi discloses a majority of the features of claim 25, as discussed above in claim 16. Koyanagi does not specifically disclose two panoramic views. However, Poelstra discloses a device for producing and consulting panoramic images, wherein the at least one panoramic view includes: a first panoramic view corresponding to a first portion of the monitored area (Poelstra: Fig. 6, transformed image 22; column 3, lines 3-4 and 42-46); a second panoramic view corresponding to a remaining portion of the monitored area (Poelstra: Fig. 6, transformed image 23; column

3, lines 3-4 and 42-46); and the at least two panoramic views combine to provide a 360° view of the monitored area relative to a vertical axis (Poelstra: column 1, lines 50-51, registering of complete surroundings in a single image with the help of a fish eye optic; column 1, line 65, through column 2, line 7, successive radial panoramic images are generated from the original fish eye image); and wherein said method further comprises encoding the at least two panoramic views and at least one virtual view of a portion of at least one of the at least two panoramic views for simultaneous display (Poelstra: Fig. 6; column 3, lines 3-4, two panoramic images are displayed simultaneously). Since both Koyanagi and Poelstra relate to producing images for consultation by a user, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the multiple panoramic image display of Poelstra with the panoramic/virtual view display of Koyanagi in order to produce a system capable of producing and consulting a large number of panoramic views quickly (Poelstra: column 1, lines 38-41). The combined system of Koyanagi and Poelstra has all of the features of claim 25.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a. Image reproduction apparatus with panoramic mode based on aspect ratio Suzuki (US 7206017 B1)

b. Multi-Sensor Panoramic Network Camera

Kaplinsky (US 20050141607 A1)

c. Visual user interface for use in controlling the interaction of a device with a spatial region

Lassiter (US 6624846 B1)

d. System for a plurality of video cameras disposed on a common network
Metzger et al. (US 20060136972 A1)

e. Surround surveillance system for mobile body, and mobile body, car, and train using the same

Kumata et al. (US 20020005896 A1)

f. Surround surveillance apparatus for mobile body

Kumata et al. (US 20020080017 A1)

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2621

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER FINDLEY whose telephone number is (571)270-1199. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/
Supervisory Patent Examiner, Art Unit 2621
/Christopher Findley/

